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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/551,481	09/29/2005	Hirohisa Enokida	576P080	4151
42754	7590	04/03/2008	EXAMINER	
Nields & Lemack 176 E. Main Street Suite #5 Westboro, MA 01581			NWAONICHA, CHUKWUMA O	
			ART UNIT	PAPER NUMBER
			1621	
			MAIL DATE	DELIVERY MODE
			04/03/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/551,481

Applicant(s)

ENOKIDA ET AL.

Examiner

CHUKWUMA O. NWAONICHA

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 9-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 9-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
- Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Current Status

1. This action is responsive to Applicants' amendment of 10 January 2008.
2. Receipt and entry of Applicants' amendment is acknowledged.
3. Claims 1 and 9-11 are pending in the application.
4. **The 103 rejection is withdrawn in favor of this rejection.**

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kameoka et al., {JP 2002030064} in view of Majetich et al., {The Use of Microwave Heating to Promote Organic Reactions, Journal of Microwave Power and Electromagnetic Energy, 30, 1, 1995, 27-45}, Gedye et al., {The Rapid Synthesis of

Organic Compounds in Microwave Ovens II, Can. J. Chem., 66, 1988, 17-26} or Whittaker et al., {The Application of Microwave Heating To Chemical Syntheaes, Journal of Microwave Power and Electromagnetic Energy, 29, 4, 1994, 195-219}. .

Applicants claim the production method for 3,3'-diallyl-4,4'-dihydroxydiphenyl sulfone characterized by subjecting 4,4'-diallyloxydiphenyl sulfone to a rearrangement reaction under microwave irradiation at 230 to 300°C; wherein all the other variables are as defined in the claims.

Determination of the scope and content of the prior art (M.P.E.P. §2141.01)

Kameoka et al. teach a method for producing 3,3'-diallyl-4,4'-dihydroxydiphenylsulfone by subjecting 4,4'-diallyloxydiphenylsulfone to a thermal (205 to 210°C) rearrangement reaction in the presence of an amine compound in an amount of 0.01 to 1 wt.% and/or an antioxidant in an amount of 0.01 to 1 wt.% based on the 4,4'-diallyloxydiphenylsulfone, while controlling the total amount of base contained in the 4,4'-diallyloxydiphenylsulfone to 0.50 ppm to yield 3,3'-diallyl-4,4'-dihydroxydiphenylsulfone.

Ascertainment of the difference between the prior art and the claims (M.P.E.P. §2141.02)

Kameoka et al. process of making 3,3'-diallyl-4,4'-dihydroxydiphenylsulfone differs from the instantly claimed process of making 3,3'-diallyl-4,4'-dihydroxydiphenylsulfone in that applicants' claim a process that employs microwave heat source at 230 to 300°C while Kameoka et al. teach a process that employed conventional heat source at 205 to 210°C.

Finding of prima facie obviousness--rational and motivation (M.P.E.P.. §2142-2143)

The instantly claimed process of making 3,3'-diallyl-4,4'- dihydroxydiphenylsulfone would have been suggested to one of ordinary skill because one of ordinary skill wishing to obtain 3,3'-diallyl-4,4'- dihydroxydiphenylsulfone is taught to employ the process of Kameoka et al.

One of ordinary skill in the art would have a reasonable expectation of success in practicing the instant invention by varying the process conditions from the teachings of Kameoka et al. to arrive at the instantly claimed process of making 3,3'-diallyl-4,4'- dihydroxydiphenylsulfone. Said person would have been motivated to practice the teaching of the reference cited because it demonstrates that 3,3'-diallyl-4,4'- dihydroxydiphenylsulfone is useful as a developing agent for heat-sensitive recording materials. Additionally, the Examiner notes that it has been documented in the literature that organic reactions are carried out with a microwave irradiation to achieve fast rate of reaction, short reaction time, reduced by-product and high product yield. Therefore, the use of microwave irradiation is not a patentable distinction. For example, the following prior arts teach the use of microwave irradiation in chemical reactions: Majetich et al., {The Use of Microwave Heating to Promote Organic Reactions, Journal of Microwave Power and Electromagnetic Energy, 30, 1, 1995, 27-45}, Gedye et al., {The Rapid Synthesis of Organic Compounds in Microwave Ovens II, Can. J. Chem., 66, 1988, 17-26} and Whittaker et al., {The Application of Microwave Heating To Chemical Syntheaes, Journal of Microwave Power and Electromagnetic Energy, 29, 4, 1994, 195-

219). Finally, merely modifying the process conditions such as temperature and concentration is not a patentable modification absent a showing of criticality. In re Aller, 220 F.2d 454, 105 U. S. P. Q. 233 (C. C. P. A. 1955).

Moreover, all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. The instantly claimed invention would therefore have been obvious to one of ordinary skill in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chukwuma O. Nwaonicha whose telephone number is 571-272-2908. The examiner can normally be reached on Monday thru Friday, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne (Bonnie) Eyler can be reached on 571-272-0871. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Art Unit: 1621

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Chukwuma O. Nwaonicha/
Examiner, Art Unit 1621

/Jafar Parsa/
Primary Examiner, Art Unit 1621
March 28, 2008